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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,565	07/10/2002	Christian Boehnke	HHI-039US	6867
959	7590	06/24/2004	EXAMINER	
LAHIVE & COCKFIELD, LLP. 28 STATE STREET BOSTON, MA 02109			LIN, KUANG Y	
			ART UNIT	PAPER NUMBER

1725

DATE MAILED: 06/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/070,565

Applicant(s)

BOEHNKE, CHRISTIAN

Examiner

Kuang Y. Lin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-9 is/are pending in the application.
- 4a) Of the above claim(s) 6-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4 and 5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1, 2, 4, 5, drawn to a casting device.

Group II, claim(s) 6-9, drawn to a casting method.

2. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: For those Groups of claims that SHARE a special technical feature, the special technical features does NOT define a contribution over the prior art, i.e. the special technical is anticipated by or obvious in view of the prior art. In the instant application, the special technical feature of providing two opposing movable walls in an injection chamber is either anticipated by or obvious in view of either Lester or Chadwick.

Applicant is required to restrict the claims to the invention previously constructively elected, and thus the claims 6-9 of Group II are withdrawn from further consideration by the examiner under 37 CFR 1.142 (b).

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1, 2, 4, 5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There is no support in the specification for the claimed feature of "volume of the chamber is reduced to **about zero** before feeding the material into the chamber".

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 4, 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Lester.

The scope of the claims reads on the prior art apparatus. In Lester, the tip of the reaction plunger 15 moves into the mold, which consists of mold parts 10 and 11, during casting process. The entire article formed from the entire solidified molten metal is cast article. Thus, the tip of the reaction plunger is one of the two walls that is movable into the mold and is configured to partially determine surface shape of the casting, i.e. the molded article 12. Further, the movable walls of Lester is capable of

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performing the features as claimed, i.e. "the volume of the chamber is reduced to about zero before feeding the material into the chamber", "the volume of the chamber is reduced to an extent that contact with ambient air is precluded" and "the volume of the chamber is reduced to a minimum while avoiding direct contact of the two movable walls".

7. Claims 1, 2, 4, 5, without considering the new matter, are also rejected under 35 U.S.C. 102(b) as being anticipated by Chadwick.

The figures 7 and 8 of Chadwick appears to show the invention as claimed. In those figures the inner cylinder 6a is capable of extending into the chamber 5 to form a metering cavity.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 1, 2, 4, 5, assuming that the part of the casting of Lester formed in the space between the wall of plunger 15 in position E and the wall of plunger 17 in the position A is not considered to be a casting, is also rejected under 35 U.S.C. 103(a) as being unpatentable over Lester and further in view of either GB 2,129,343 or Chadwick and vice versa.

Lester shows to deliver molten metal through moving two opposed pistons in the injection cylinder. The apparatus of Lester is capable of providing various volume of molten metal needed for different castings. GB '343

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and Chadwick, respectively, show to use one of the two opposed pistons to define a part of mold cavity such that to eliminate the use of sprue and thereby the trimming step for removing portions of the casting formed by the gate and sprue is not required and thus simplify the die casting process and reduce the cost. It would have been obvious to use one of piston to define the mold cavity as taught by GB '343 or Chadwick in the apparatus of Lester in view of the advantage. It would also obvious to use the two opposed pistons movable within the chamber of injection cylinder for varying the volume of the molten metal for casting different size of castings as taught by Lester in the apparatus of GB '343 or Chadwick in view of the advantage.

10. Applicant's arguments filed May 10, 2004 have been fully considered but they are not persuasive.

a. Applicant's main argument is in that prior art references fail to disclose the claimed feature that "the volume of the chamber is reduced to about zero before feeding the material into the chamber", "the volume of the chamber is reduced to an extent that contact with ambient air is precluded" and "the volume of the chamber is reduced to a minimum while avoiding direct contact of the two movable walls". However, those features are related to a method limitation in an apparatus claim and thereby it does not constitute a limitation to the scope of the apparatus. Further, the prior art references are capable of performing the feature as claimed, i.e. the movable walls of the prior art references are capable to

be moved such that the volume of the chamber is reduced to about zero before feeding the material into the chamber.

b. In page 7, last paragraph of the remarks applicant stated that GB '343 fails to teach that the volume of the chamber is reduced to about zero before feeding the material into the chamber, as recited in claim 1.

However, Lester shows that the movable walls are capable of performing that feature.

c. In page 8, 2nd paragraph of the remarks applicant stated that in Lester the portion of charge outside the mold cavity 16 do not form part of the casting, as they are considered sprue. However, as the drawings of the Lester is compared with that of instant application, it is noted that the configuration of the cavity in Lester is similar to that of instant application. Thus, as the instant application did, the metering cavity 20 of Lester is considered as a part of mold cavity.

d. With respect to the argument as appearing on page 8, last paragraph of the remarks, since GB '343 and Chadwick, respectively, show to use one of the two opposed pistons to define a part of mold cavity such that to eliminate the use of sprue and thereby the trimming step for removing portions of the casting formed by the gate and sprue is not required and thus simplify the die casting process and reduce the cost. Thus, the simpler die casting process and the reduced cost are the reasons, for those of ordinary skill in the die casting art to modify the apparatus of Lester in view of GB '343 and Chadwick.

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11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuang Y. Lin whose telephone number is 571-272-1179. The examiner can normally be reached on Monday-Friday, 10:00-6:30,.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas X Dunn can be reached on 571-272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kuang Y. Lin
Primary Examiner
Art Unit 1725

6-17-04